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WALTER M. DICKIE, M.D., Director

Weekly Bulletin

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PLAGUE

By Walter M. Dickie, M.D., Director California State Department of Public Health

From the very beginning of civilization, certain epidemic diseases have played major roles in the world-wide tragedy of human life. Of these, tuberculosis, which began to decline even before its true cause was known, has killed more men than any disease in history. Smallpox was once the most prevalent and most dreaded of all diseases that afflict mankind. Malaria, an accessory in the fall of both Grecian and Roman empires, has mowed down vast hordes of humanity in epidemic waves. Leprosy, fear-kindled through biblical chronicles, has brought loathsome disfigurement and slow death to vast numbers of men in almost every country throughout the world. Plague, however, has played the most colorful and spectacular part in this great historical drama. Its rapid and highly fatal course, its significant symptoms that gave rise to its cognomen "Black Death" and its ability to destroy whole populations have given it a stellar status in the great theater of civilization. Its tragic performance has inspired great literature and art. It has been and still is the subject of intensive scientific investigation. Even today the disease exists in pandemic form throughout the world, having made a spectacular reappearance in 1894 after slumbering for centuries. In India alone, since the turn of the present century, at least 12,000,000 lives have been sacrificed to this great destroyer. California has a particular interest in plague for it is known to have been present in this community since 1900.

EARLY HISTORY

It has been established that outbreaks of epidemic disease mentioned in the Bible (I Samuel, 4) may be considered as true plague. Through this source the history of the disease may be traced up to 1320 B. C. The Philistines, when restoring the ark which they had taken from Canaan, made offerings of golden images of mice "which marred the land" and of their emerods (hemorrhoids).

The first record of a disease that corresponds closely to our modern conception of plague is in the writings of Rufus, an early Roman physician, who described bubonic plague in Libya, Egypt and Syria about 100 A. D. and who traced the disease back to about the end of the third century B. C. He described the characteristic symptoms of high fever, delirium, pains and an eruption of large, hard buboes.

Authentic accounts of plague appear in the records of the great epidemics that occurred during the reign of Justinian in the 6th century which apparently started in Egypt in 542 A. D., spreading to Constantinople, where it is said to have caused 10,000 deaths in one day. The Roman empire is reported to have lost half of its entire population from plague during this century. Gibbon, the historian, considers it possible that there were 100 million victims and another historian stated that the pest depopulated towns, turned the country into a desert and made habitations of man to become the haunts of wild beasts.

It was during the Middle Ages, however, that plague became definitely established as the most devastating disease of history. From 1334, radiating easterly and westerly from China, it began a course which spread over practically all of the known world. In the 15th, 16th and 17th centuries it prevailed in European and Asiatic countries, killing 300,000 residents of Naples during five months of 1656. From 1664 to 1666 occurred the Great Plague of London which caused 70,000 deaths in a population of 450,000. This was the Black Death that caused "grass to grow in the streets of London" and which inspired De Foe's "Journal of the Plague Year," as well as references in Samuel Pepys' Diary. The outbreak in England started in Stratford-on-Avon in July of 1564, when William Shakespeare was three months old. During a few months of that year 237 deaths occurred in this small village, whole families being destroyed.

The recession of the wave of infection that followed has been described by one writer as comparable to stagnant pools left behind by the lowering tide. Only isolated and limited outbreaks occurred until 1894 when the disease flared up anew at Hong Kong and was transported along world trade routes to practically every part of the globe. In 1899 it appeared in Hawaii and in 1900 in San Francisco. In 1919 it appeared in epidemic form in Oakland and in 1924–1925 in Los Angeles. Single cases have occurred intermittently in various parts of the state. In 1900 the disease was demonstrated in rats in San Francisco and in 1908, although suspected for several years, it was proved for the first time in California ground squirrels. Since 1900, 392 cases, of which 271 were fatal, have occurred in California. No epidemic has occurred since 1925.

FORMS OF PLAGUE

Clinically, plague exists in three forms—bubonic, pneumonic and septicemic. The bubonic form may appear as severe or mild. The pneumonic and septicemic forms are almost invariably fatal. Both bubonic and pneumonic plague have occurred in California but there is no record of the appearance of the septicemic form in this state. Only the bubonic form was encountered prior to 1919 when an outbreak of the pneumonic form appeared in Oakland involving 14 cases, 13 of which were fatal. Again in Los Angeles in 1924–1925 there occurred 32 cases of pneumonic plague, 30 of which were fatal. All other cases reported within the state have been of the bubonic type. Because of the fact that involvement of the lungs is common in plague-infected ground squqirrels, it has been assumed that these outbreaks of pneumonic plague were always due to infection from ground squirrels. There is no evidence, however, to prove that the pneumonic form may not be contracted from infected rats, as well as from infected ground squirrels. Generally, however, it is believed that the pneumonic form is contracted from rodents other than the rat. There is no indication, however, of any differentiation in the causative organism.

THE RAT

The rat is the chief reservoir of plague and man generally contracts the disease from rats. In different parts of the world, however, the disease is endemic in several different species of rodent. In the mountains of central Asia, including Siberia, Mongolia, Thibet and Manchuria, which is regarded as the original home of plague, the disease is associated with a wild hibernating rodent, the tarbagan. It is this rodent that provided the source of the historical outbreak of pneumonic plague that occurred in Manchuria in 1910–11, when 60,000 deaths occurred. The tarbagan is valuable for its fur and the migration to Manchuria of 10,000 Chinese hunters unfamiliar with the danger of handling sick rodents and unable to recognize those that were infected was a primary factor in the production of this disastrous epidemic. In Africa, other rodents peculiar to that continent constitute reservoirs of infection. In South America other rodents play similar roles and in California the ground squirrel unquestionably is the distinct reservoir of infection.

The importance of the tarbagan, however, as a factor in the world epidemiology of plague cannot be overlooked. It has been established that peculiar physiological phenomena, particularly the lowering of the body temperature during hibernation, enables the infected tarbagan to survive and the bacillus is preserved. This, alone, may keep the disease alive in central Asia. It is probable that similar phenomena are important in preserving the endamicity of the disease in African, South American and North American centers. It is conceded, however, that plague is primarily a disease of the rat. This rodent is a world traveler and constitutes the chief factor in the spread of plague. Since the rat comes into closer contact with man and more often than any other known rodent, war against the rat must be continued unabatedly. It has been observed that before epidemics of plague and also during such epidemics rats, as well as ground squirrels, may die in large numbers.

Before human plague first appeared in California, it was noted that rats died without apparent cause in very large numbers. There is reason to believe that the disease was first transmitted to the rat population before it was contracted by man. Furthermore, it is known that rats suffer both with acute and chronic plague in nature and there is every indication that they may act as healthy carriers of the disease.

THE FLEA

As long ago as 1897 the theory was advanced that plague is transmitted by fleas, and the Indian Plague Commission in 1906 established the fact that the disease is generally transmitted from rodent to rodent and from rodent to man by certain species. Under some conditions the rat flea will bite man, particularly if there is a shortage in the flea's natural food supply. Upon leaving the dead body of a rat, it is possible that the rat fleas may be attracted to man. There is evidence, also, that plague infection may persist in fleas for several weeks, particularly during cold weather.

(Continued in next issue)

PURE DRUG ACT

An official of a chemical company, charged jointly with the corporation for selling the Los Angeles County Stores U S P X Sodium Citrate which was actually U S P VIII, was fined $250 and 6 months in the city jail. $225 and the 6 months in city jail were suspended. A plea of guilty by the official was entered and the judge dismissed the defendant corporation. This violation involved the erasure of the statement VIII and X being stenciled in its place. The difference in standard between the two revisions of the U S P is reflected in a considerable price differential.

Numerous drug samples were obtained during the month. Several lots of very old merchandise were destroyed after the owner signed a voluntary condemnation. In these stocks the manufacturers could not be located, having been out of business for some time.

I know that teachers can not say, can not do, everything they wish. They, too, are bound by the established order which imposes its limitations upon them and makes them necessarily feel its authority * * *. But there are those who are clear-seeing and courageous and they have a great strength. They have on their side the march of events. Their weapon is truth, and it is a weapon which sooner or later will conquer.
—Henri Barbuse.

DISEASES REPORTABLE IN CALIFORNIA

REPORTABLE ONLY

ANTHRAX
BERIBERI
BOTULISM
COCCIDIOIDAL GRANULOMA
DENGUE*
FLUKE INFECTION
FOOD POISONING
GLANDERS***
HOOKWORM
JAUNDICE (Infectious)
MALARIA*
PELLAGRA
PNEUMONIA (Lobar)
RELAPSING FEVER
ROCKY MOUNTAIN SPOTTED FEVER
SEPTIC SORE THROAT
TETANUS
TRICHINOSIS
TULAREMIA
UNDULANT FEVER

ISOLATION OF PATIENT

CHICKENPOX**
DYSENTERY (Amoebic)
DYSENTERY (Bacillary)
ERYSIPELAS
GERMAN MEASLES**
GONOCOCCUS INFECTION
INFLUENZA
MEASLES**
MUMPS**
OPHTHALMIA NEONATORUM
PSITTACOSIS
RABIES (Animal)**
RABIES (Human)
SYPHILIS
TRACHOMA
TUBERCULOSIS
WHOOPING COUGH**

QUARANTINABLE

CHOLERA***
DIPHTHERIA
ENCEPHALITIS (Epidemic)
LEPROSY
MENINGITIS (Epidemic)
PLAGUE***
ACUTE ANTERIOR POLIOMYELITIS
SCARLET FEVER
SMALLPOX
TYPHOID AND PARATYPHOID FEVER
TYPHUS FEVER
YELLOW FEVER***

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* Patients should be kept in mosquito-free room.
** Nonimmune contacts isolated also.
*** Cases to be reported to State Department of Public Health by telephone or telegraph and special instructions will be issued.

CANDY FACTORIES

Several candy factories were inspected in San Francisco and two barrels of Chinese dried egg albumen sold as domestic were discovered. These were immediately quarantined and sent back to the warehouse from where obtained. One candy factory had made preparations to manufacture Victoria chocolates (brandy and syrup in chocolates), but was warned not to continue, as same was in violation of Section 4 of the Pure Food Act. Another candy factory had a problem of insect contamination in the chocolates after they had stood a while, and blamed it on the chocolate manufacturer. He was told to keep the plant in a more sanitary condition, clean utensils and containers more often, and fumigate the place occasionally.

There is a principle which is a bar against all information, which is proof against all argument and which can not fail to keep a man in everlasting ignorance. That principle is "condemnation before investigation."—Herbert Spencer.

Intelligence is the most potent factor that can be directed against disease.

MORBIDITY

Complete Reports for Following Diseases for Week Ending November 14, 1936

Chickenpox

274 cases: Alameda County 16, Berkeley 4, Hayward 9, Oakland 9, Pleasanton 1, Contra Costa County 7, Pittsburg 2, Walnut Creek 1, El Dorado County 1, Fresno County 12, Fresno 1, Kingsburg 3, Kern County 2, Bakersfield 7, Los Angeles County 25, Azusa 2, El Monte 2, Long Beach 8, Los Angeles 21, Pasadena 2, Pomona 3, San Marino 16, Whittier 1, San Rafael 3, Mono County 12, Napa County 1, Grass Valley 2, Orange County 2, Laguna Beach 2, Riverside 2, Sacramento 5, North Sacramento 1, Ontario 2, San Diego County 1, Chula Vista 3, Escondido 2, San Diego 4, San Francisco 10, San Joaquin County 2, San Luis Obispo County 11, Burlingame 1, Santa Barbara County 1, Santa Clara County 12, Palo Alto 8, Sunnyvale 5, Santa Cruz County 4, Watsonville 8, Shasta County 2, Benicia 2, Red Bluff 1, Tulare County 4, Ventura 1, Woodland 1, Yuba County 2, Marysville 2.

Diphtheria

67 cases: Contra Costa County 1, Imperial County 3, Bakersfield 4, Kings County 1, Los Angeles County 4, Los Angeles 16, Monrovia 1, Orange County 5, Anaheim 1, Fullerton 3, Santa Ana 1, Sacramento County 1, Sacramento 2, San Bernardino 2, National City 1, San Diego 2, San Francisco 1, San Luis Obispo County 1, Burlingame 1, Santa Barbara County 1, Santa Barbara 2, Santa Clara County 3, Fort Jones 1, Turlock 2, Sutter County 1, Tulare County 2, Ventura 2, Marysville 2.

German Measles

19 cases: Alhambra 1, Los Angeles 2, Pasadena 5, Brea 1, Orange 1, Santa Ana 1, San Diego 1, San Francisco 1, Stockton 1, Tracy 2, Santa Clara County 2, Tulare 1.

Influenza

31 cases: Oakland 1, Los Angeles County 2, Glendale 1, Los Angeles 19, Brea 1, San Francisco 2, San Luis Obispo County 1, Santa Cruz County 3, Benicia 1.

Malaria

2 cases: San Joaquin County 1, California 1.*

Measles

20 cases: Oakland 1, Fresno County 1, Bakersfield 1, Los Angeles 2, Pasadena 2, South Pasadena 2, Grass Valley 1, Sacramento 1, San Diego County 2, San Francisco 3, Petaluma 1, Tulare County 2, Yolo County 1.

Mumps

325 cases: Alameda County 4, Alameda 1, Berkeley 4, Livermore 1, Oakland 2, San Leandro 2, Oroville 3, Colusa County 5, Fresno County 8, Kingsburg 1, Kern County 8, Bakersfield 1, Los Angeles County 26, Alhambra 8, Beverly Hills 2, Burbank 8, Compton 1, Glendale 1, Huntington Park 2, Inglewood 1, Los Angeles 25, Pasadena 7, San Marino 1, Santa Monica 2, Sierra Madre 1, South Pasadena 5, Whittier 3, Lynwood 1, Hawthorne 1, South Gate 4, Monterey County 1, Napa 1, Orange County 6, Fullerton 1, Santa Ana 20, Laguna Beach 1, Riverside County 8, Corona 2, Riverside 27, Sacramento 15, North Sacramento 2, Chino 1, Ontario 2, Redlands 3, San Bernardino 1, San Diego County 14, Chula Vista 5, Escondido 2, National City 7, San Diego 19, San Francisco 15, San Joaquin County 1, Stockton 5, San Mateo County 3, Burlingame 6, San Bruno 1, Santa Barbara County 2, Santa Barbara 5, Santa Clara County 1, Mountain View 1, Healdsburg 1, Tulare County 1, Lindsay 1, Yolo County 3, Davis 1, Woodland 1.

Pneumonia (Lobar)

52 cases: Oakland 4, Calaveras County 1, Colusa 1, Concord 1, Fresno County 1, Fresno 1, Westmoreland 2, Bakersfield 1, Los Angeles County 1, Glendale 1, Los Angeles 15, Hawthorne 1, Bell 1, Santa Ana 2, Riverside 1, Sacramento County 1, Sacramento 5 San Diego County 2, San Diego 1, San Francisco 2, San Joaquin County 1, Stockton 1, Santa Clara County 2, Santa Cruz 2, Yolo County 1.

Scarlet Fever

228 cases: Alameda County 1, Albany 1, Berkeley 1, Oakland 3, Piedmont 1, Jackson 1, Butte County 4, Colusa 1, El Cerrito 1. Walnut Creek 3, Fresno County 4, Fresno 2, Kern County 8, Lassen County 1. Los Angeles County 7, Alhambra 1, Arcadia 1, Compton 1, Glendora 2, Inglewood 1, Long Beach 2, Los Angeles 18, Pasadena 1, Pomona 1, Redondo 1, South Pasadena 1, Torrance 1, Hawthorne 1, South Gate 4, Bell 1, Madera County 4, San Anselmo 12, San Rafael 1, Merced County 8, Merced 6, Monterey County 1, Salinas 1, Napa County 2, Napa 1, Orange County 1, Anaheim 1, Brae 2, Placer County 5, Riverside County 1, Corona 1, Riverside 2, Sacramento County 11, Sacramento 15, Ontario 2, Redlands 2, La Mesa 1, National City 2, San Diego 2, San Francisco 16, San Joaquin County 2, Stockton 4, Tracy 3, San Mateo County 1, San Bruno 3, San Mateo 1, Lompoc 2, Santa Clara County 7, Palo Alto 3, Santa Clara 1, Sunnyvale 1, Santa Cruz County 2, Shasta County 1, Dunsmuir 1, Yreka 1, Benicia 1, Vallejo 13, Sebastopol 1, Tehama County 1, Tulare County 3.

Smallpox

No cases reported.

Typhoid Fever

7 cases: Berkeley 1, Fresno County 1, Los Angeles 1, Fullerton 1, Sacramento County 1, San Diego 1, Lodi 1.

Whooping Cough

247 cases: Alameda County 3, Albany 1, Berkeley 6, Hayward 3, Oakland 16, Fresno County 5, Fresno 8, Kings County 1, Los Angeles County 11, Alhambra 1, Inglewood 2, Long Beach 1, Los Angeles 74, Montebello 1, Pasadena 3, Redondo 1, Santa Monica 4, Maywood 1, Anaheim 2, Newport 1, Santa Ana 1, Riverside County 2, Corona 7, Riverside 4, Sacramento 10, San Diego County 11, El Cajon 6, Oceanside 4, San Diego 11, San Francisco 24, San Joaquin County 2, San Luis Obispo County 2, Arroyo Grande 1, Santa Clara County 12, Watsonville 2, Tehama County 1, Tulare County 1, Lindsay 1.

Meningitis (Epidemic)

3 cases: Fresno County 1, Pasadena 1, San Francisco 1.

Dysentery (Amoebic)

One case: San Francisco.

Dysentery (Bacillary)

6 cases: Fresno County 2, Modesto 4.

Pellagra

One case: Los Angeles.

Poliomyelitis

9 cases: Berkeley 1, Humboldt County 1, Los Angeles County 1, Los Angeles 3, Orange County 1, San Diego County 1, Vallejo 1.

Tetanus

One case: Los Angeles County.

Trachoma

5 cases: Riverside County 4, Riverside 1.

Encephalitis (Epidemic)

One case: San Francisco.

Trichinosis

One case: San Francisco.

Food Poisoning

8 cases: San Francisco 7, San Joaquin County 1.

Undulant Fever

One case: Los Angeles.

Septic Sore Throat (Epidemic)

2 cases: Los Angeles County 1, Benicia 1.

Actinomycosis

One case: Los Angeles County.

Rabies (Animal)

21 cases: El Cerrito 1, Los Angeles County 7, Long Beach 5, Los Angeles 3, South Gate 1, Monterey County 1, Orange County 1, San Bernardino 2.

Interest of any kind produces concentration naturally. * * * People dominated by one great passion * * * live in their mastering purpose.—Ernest Dimnet: The Art of Thinking.—Leon J. Richardson.

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* Cases charged to "California" represent patients ill before entering the state or those who contracted their illness traveling about the state throughout the incubation period of the disease. These cases are not chargeable to any one locality.

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